MetroFuture Land Use Scenario – Transportation Impacts and Implications

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Introduction

- **MAPC**: Regional Planning Agency for 101 cities and towns in Metro Boston
- **MetroFuture**: Long-range regional plan for growth and development; adopted 2008
- **MAPC Data Center**: responsible for scenario modeling, population and employment projections
- Results presented here are a result of collaboration with CTPS, MassGIS, MIT Department of Urban Studies and Planning

Reducing transportation emissions

Technology

- Increased fuel efficiency
- Reducing carbon content of fuels

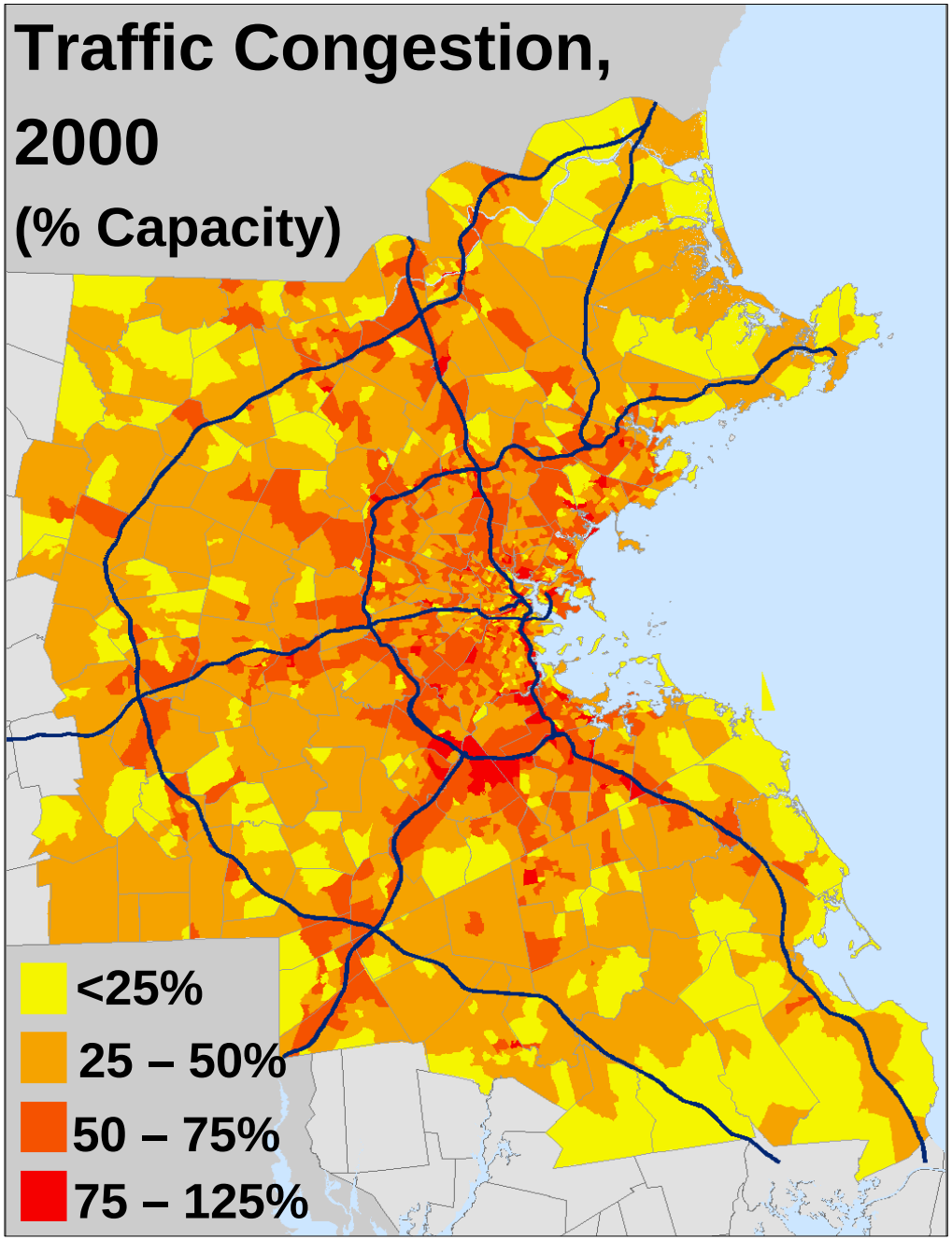
Land use patterns

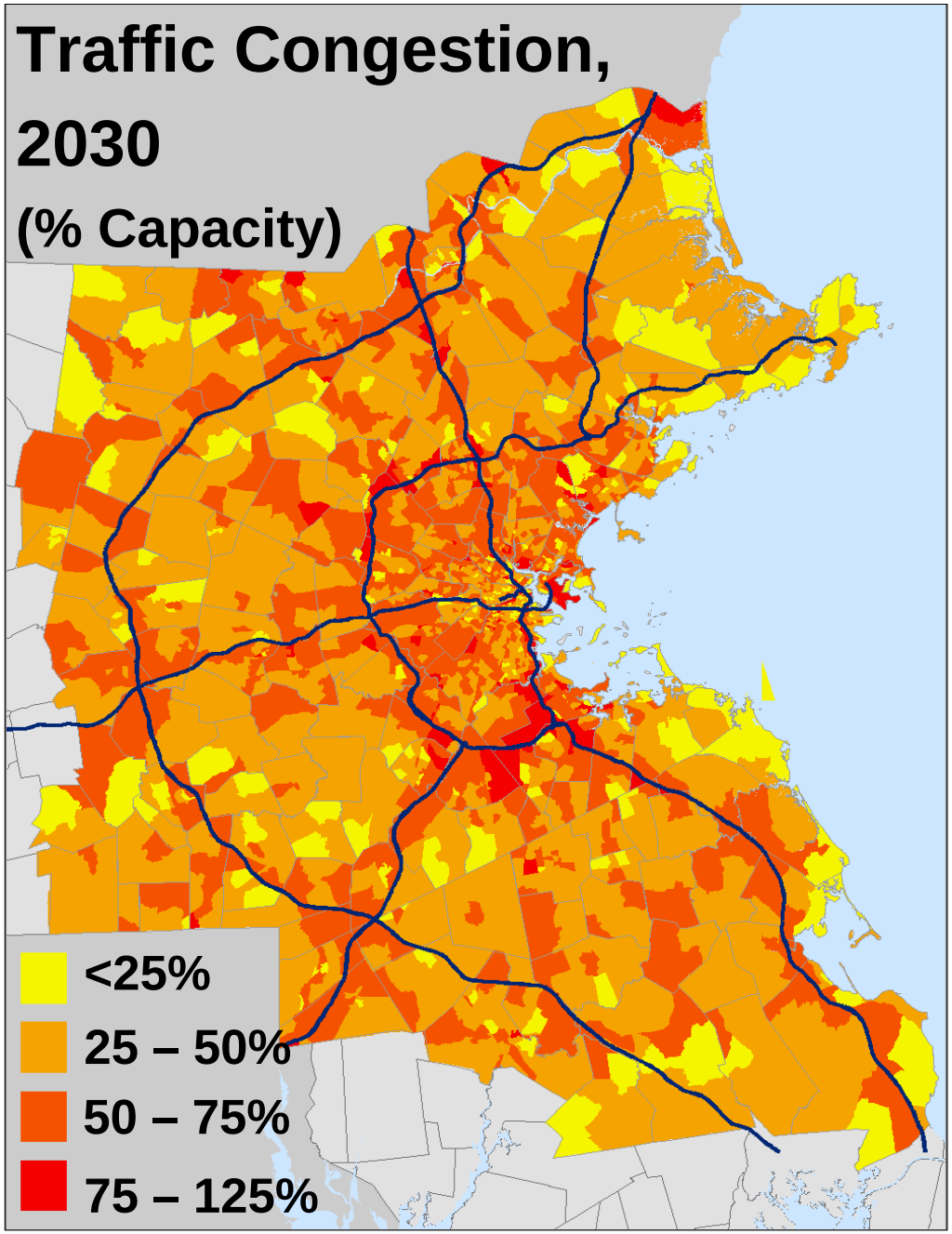
- Distance to destinations
- Density, diversity, design, etc.

Incentives and disincentives

- Congestion pricing, tolls, gas taxes, & PAYD
- Parking policies, pricing, & cash-out

Current Trends: Worsening Traffic





Metro Boston Community Types

Inner Core Communities

- Boston, Cambridge, and surrounding “streetcar suburbs”
- Recent housing boom, but almost no undeveloped land

Regional Urban Centers

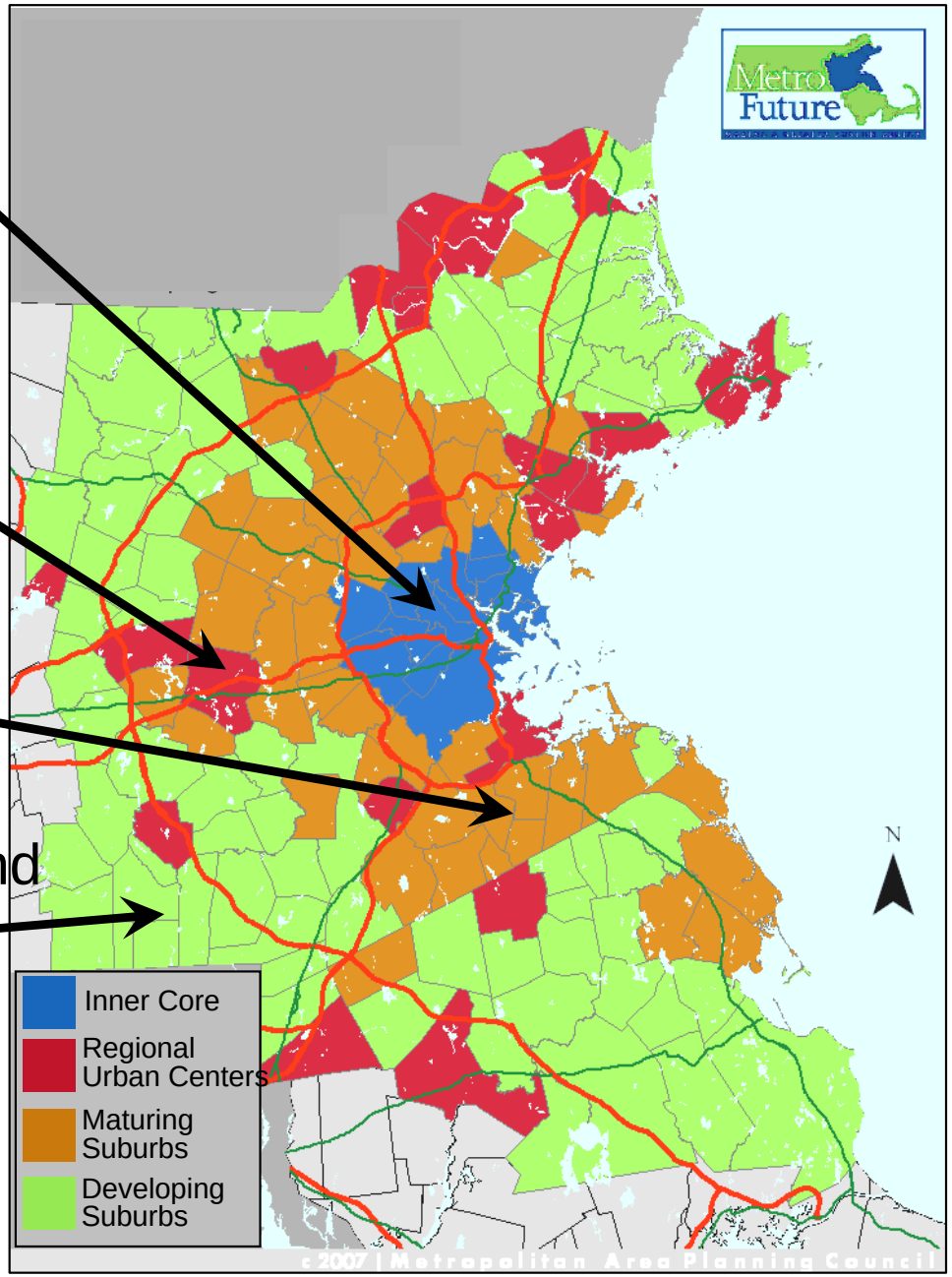
- Growing immigrant communities
- Recovering from disinvestment

Maturing Suburbs

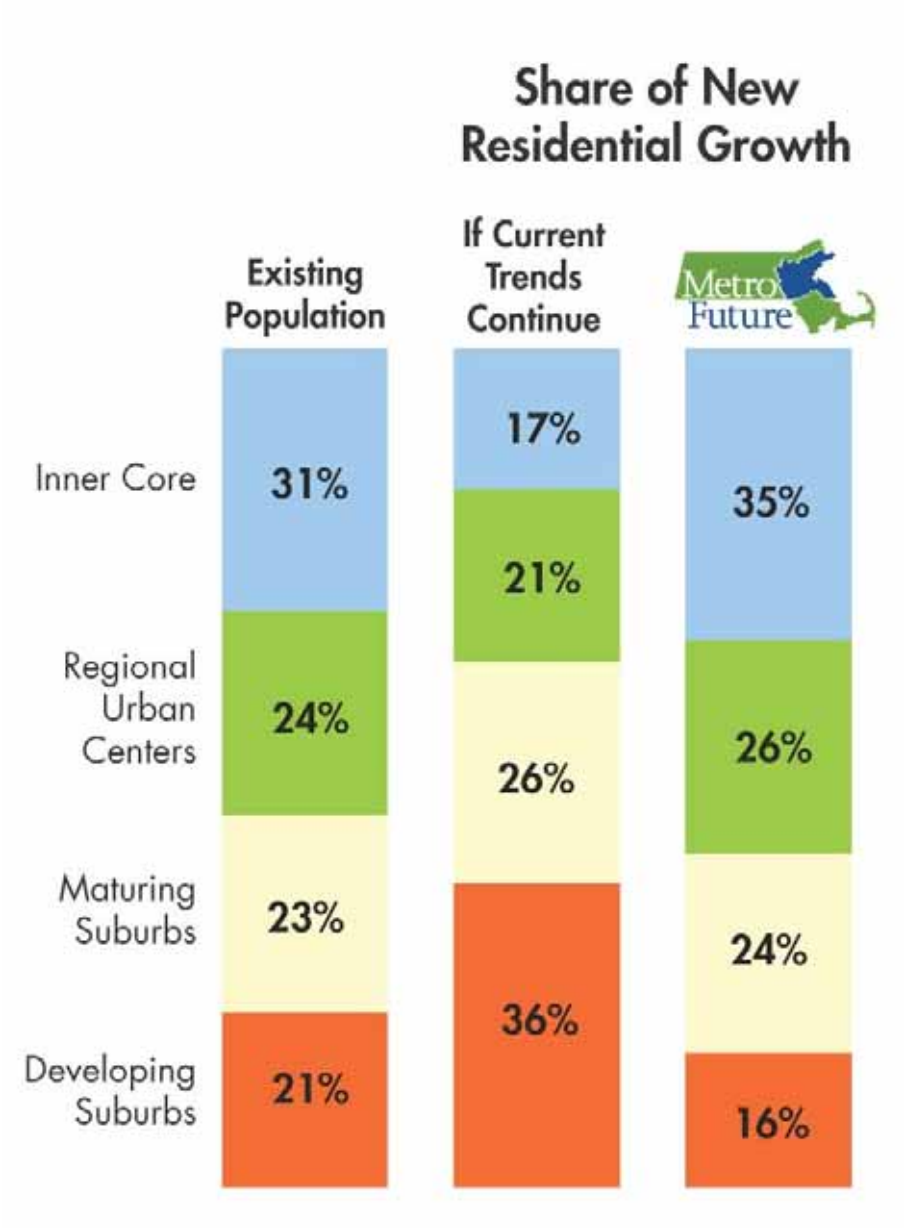
- Moderate-density residential neighborhoods
- Dwindling supply of developable land

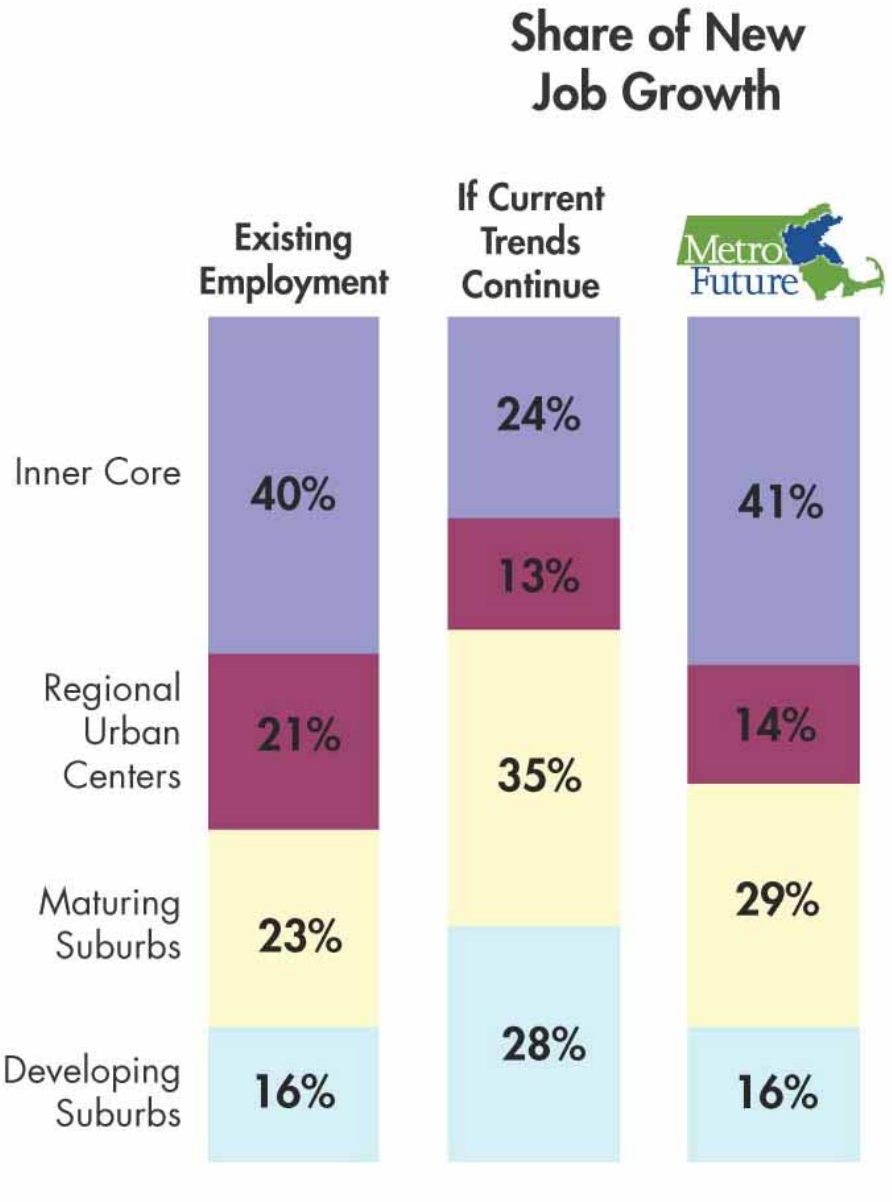
Developing Suburbs

- Having been growing very rapidly
- Plenty of vacant land available for development



MetroFuture Regional Growth Patterns

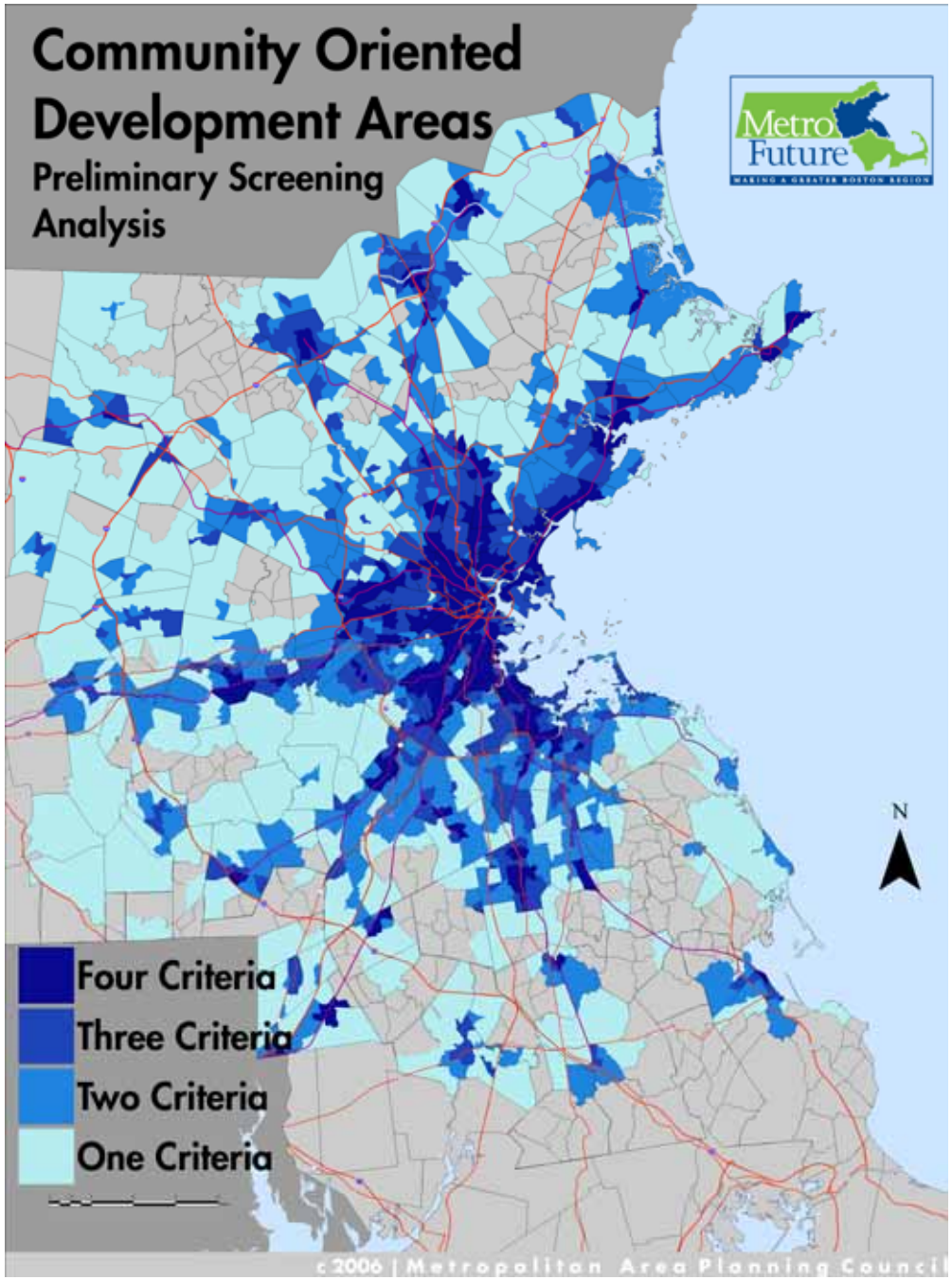




Identification of targeted growth

Preliminary screening

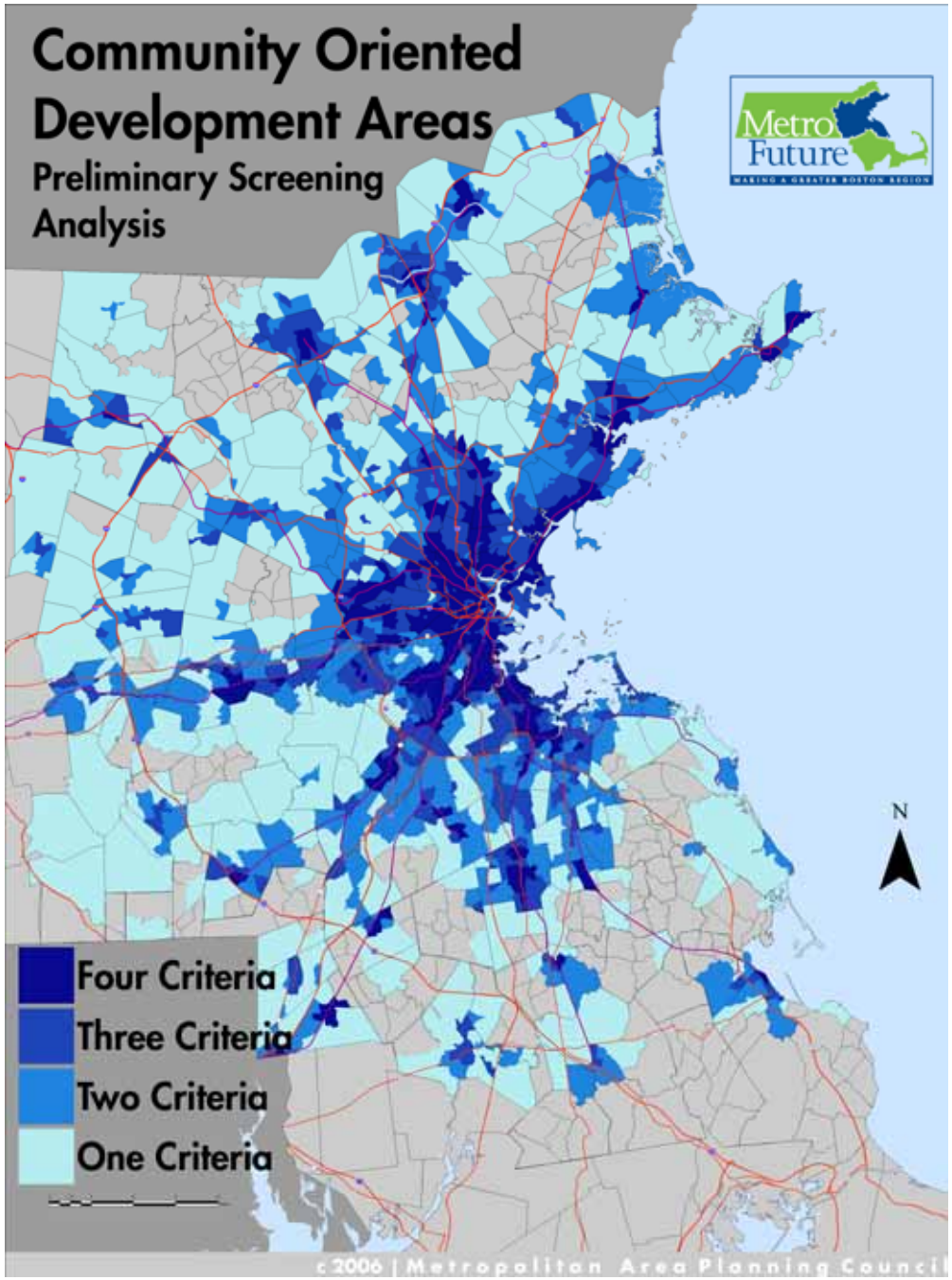
- Transit access
- Existing population and employment density
- Town/village centers
- Sewer service



Identification of targeted growth areas

TAZ-level review

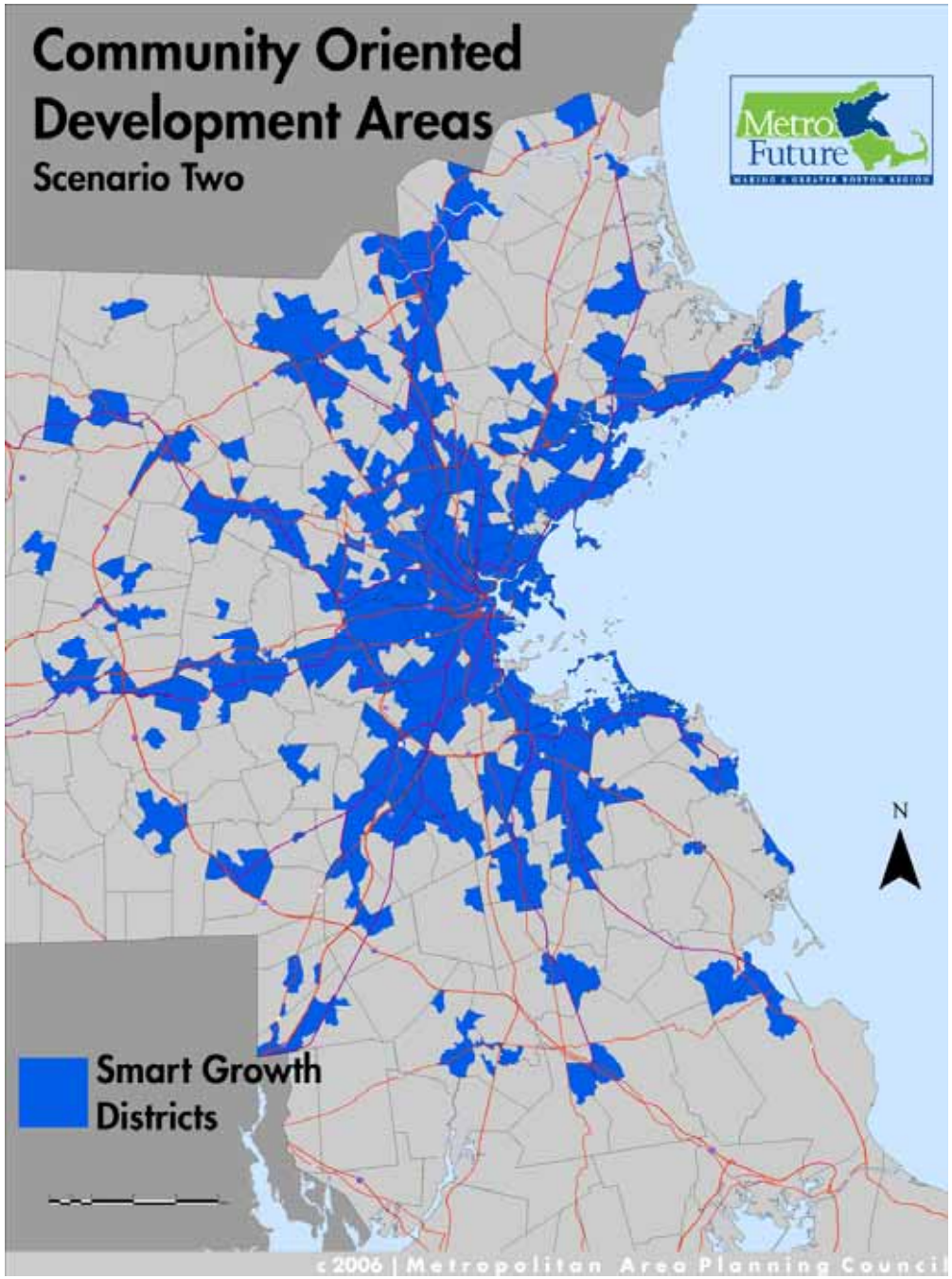
- Community comments
- Master plans and local area plans
- Underutilized commercial districts
- Impacts of highway pollution



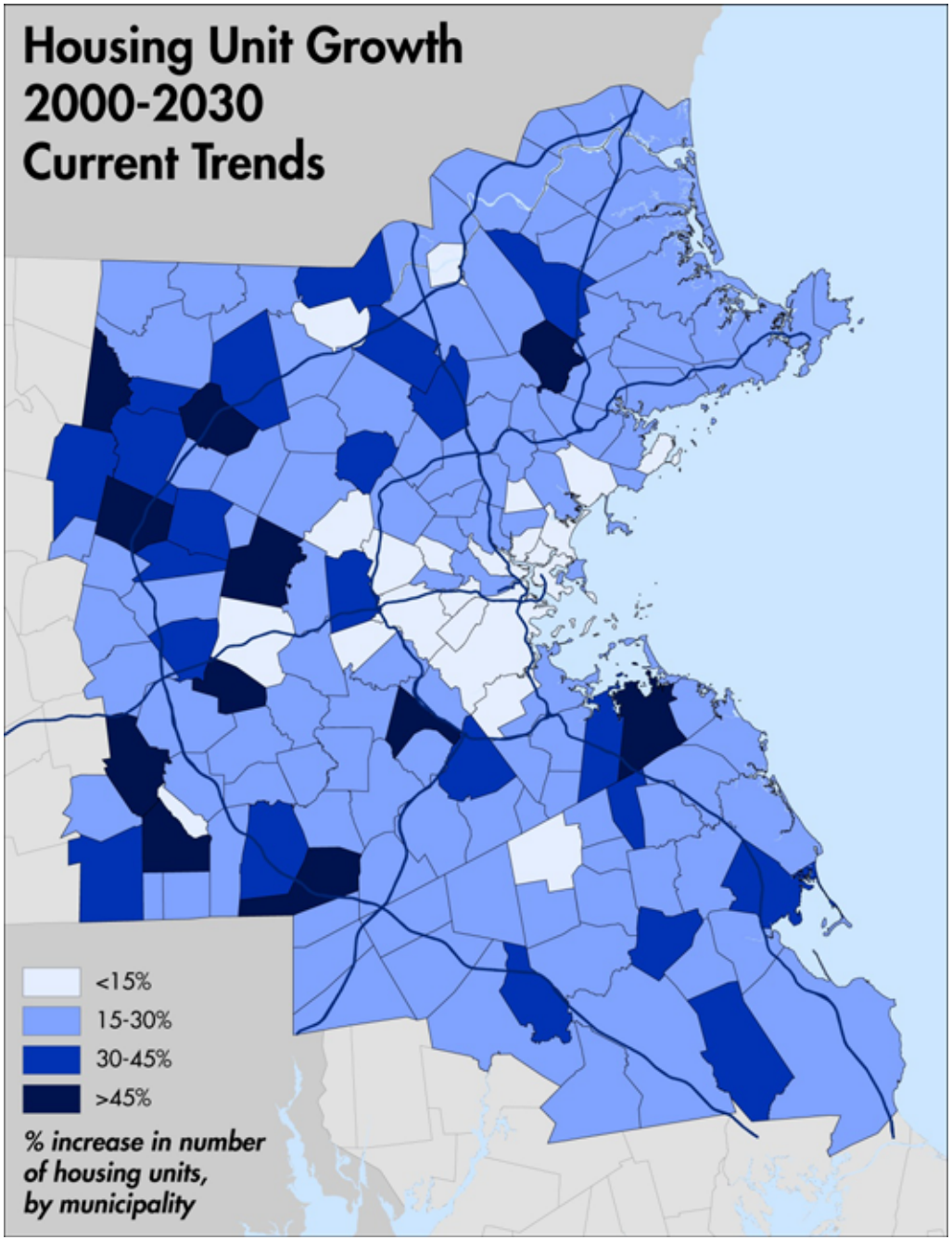
Identification of targeted growth areas

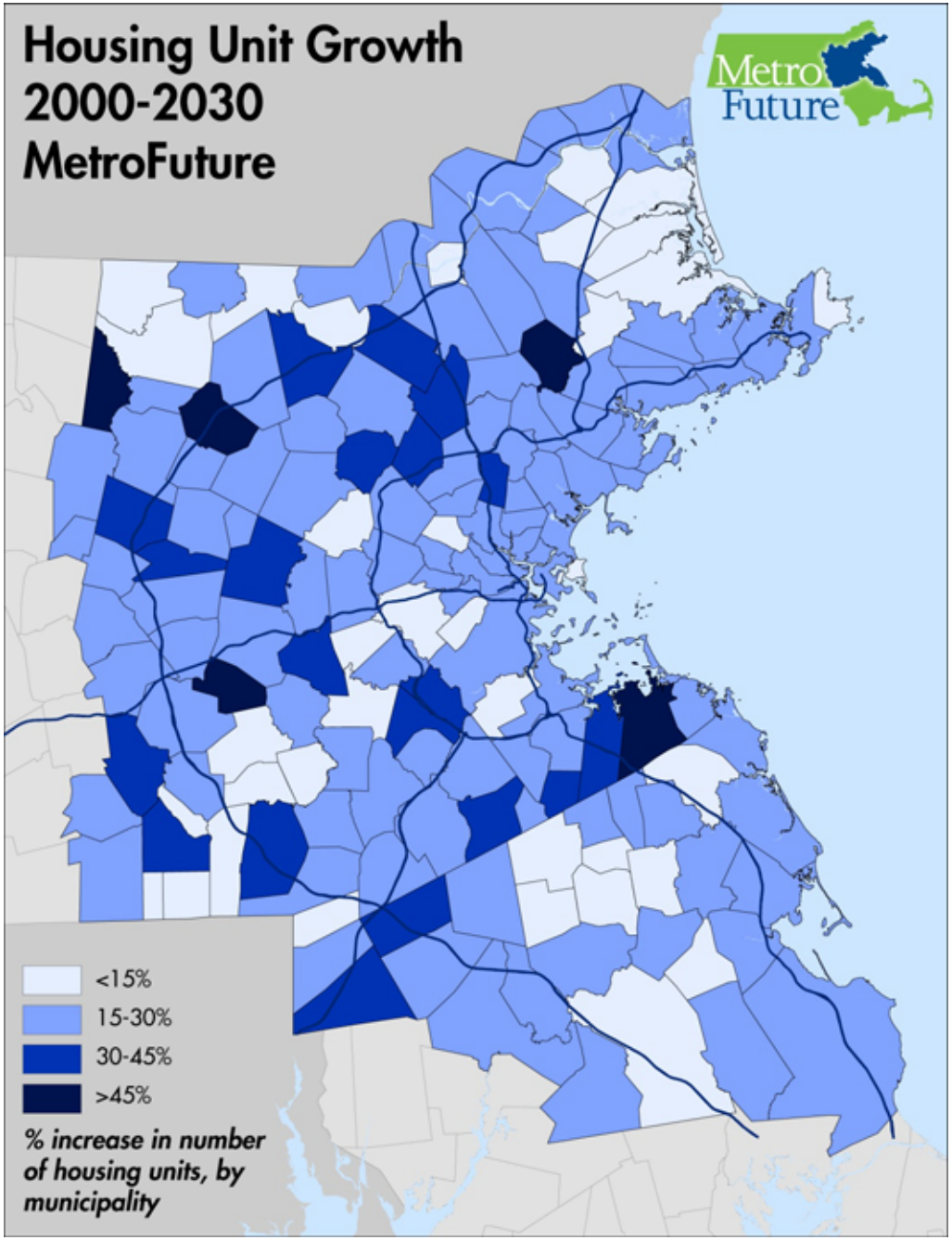
Community-Oriented Development Areas

- 1,918 TAZs
- 1.2 million households
- 28% of the region's land area
- 70% of existing households



MetroFuture Housing Growth Patterns





Targeted Job Growth

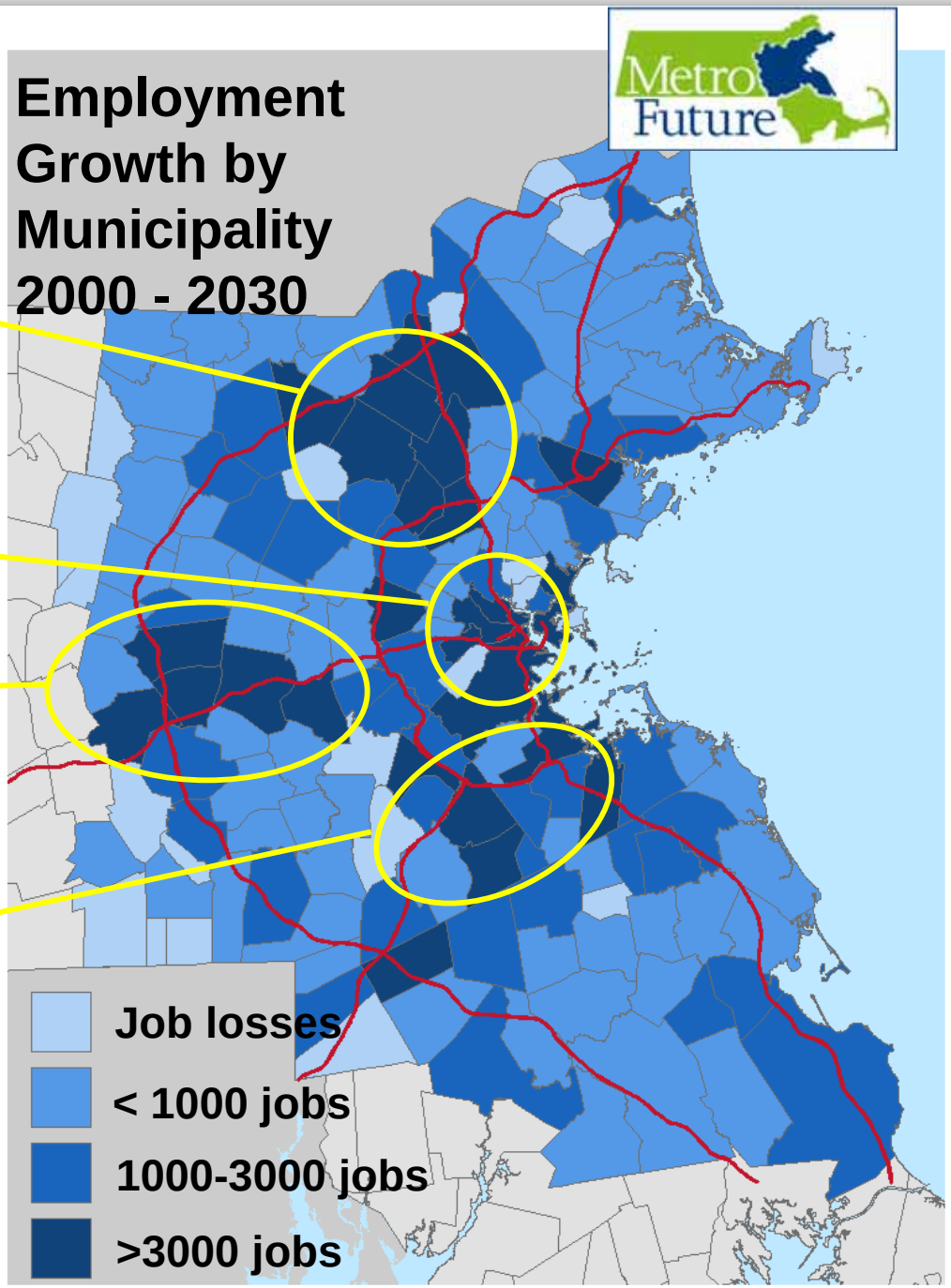
Four major job centers:

I-93 North: 35,000 jobs
Andover, Billerica, Burlington, Chelmsford, Tewksbury, Wilmington, Woburn

Metro Core: 108,000 jobs
Boston, Cambridge, Somerville

MetroWest: 25,000 jobs
Framingham, Hopkinton, Hudson, Marlborough, Natick, Northborough, Southborough, Westborough

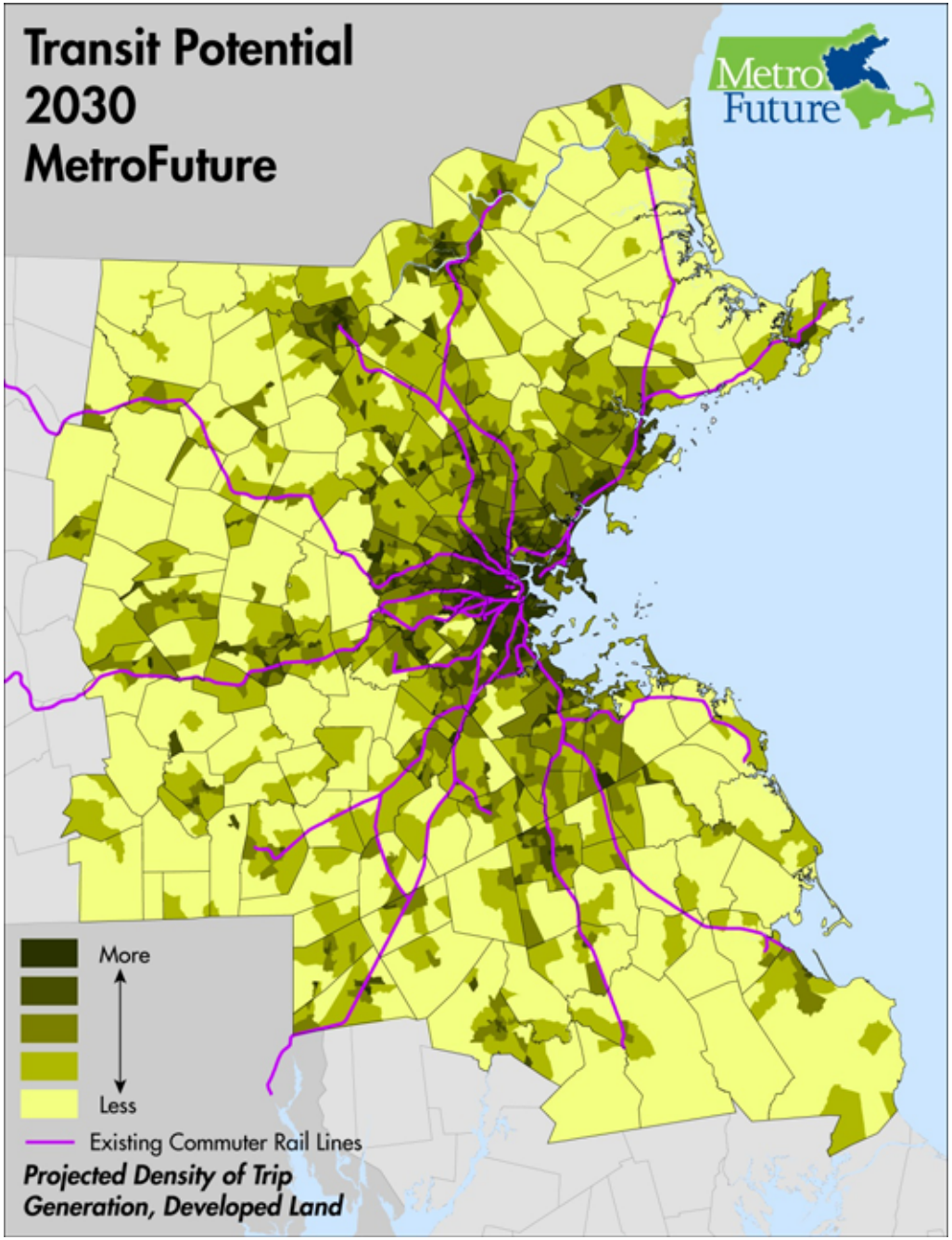
128 South: 33,000 jobs
Avon, Braintree, Canton, Norwood, Quincy, Randolph, Stoughton, Westwood, Weymouth



Increasing Transit Potential

53% of region's residents and jobs at density above 15 units per acre

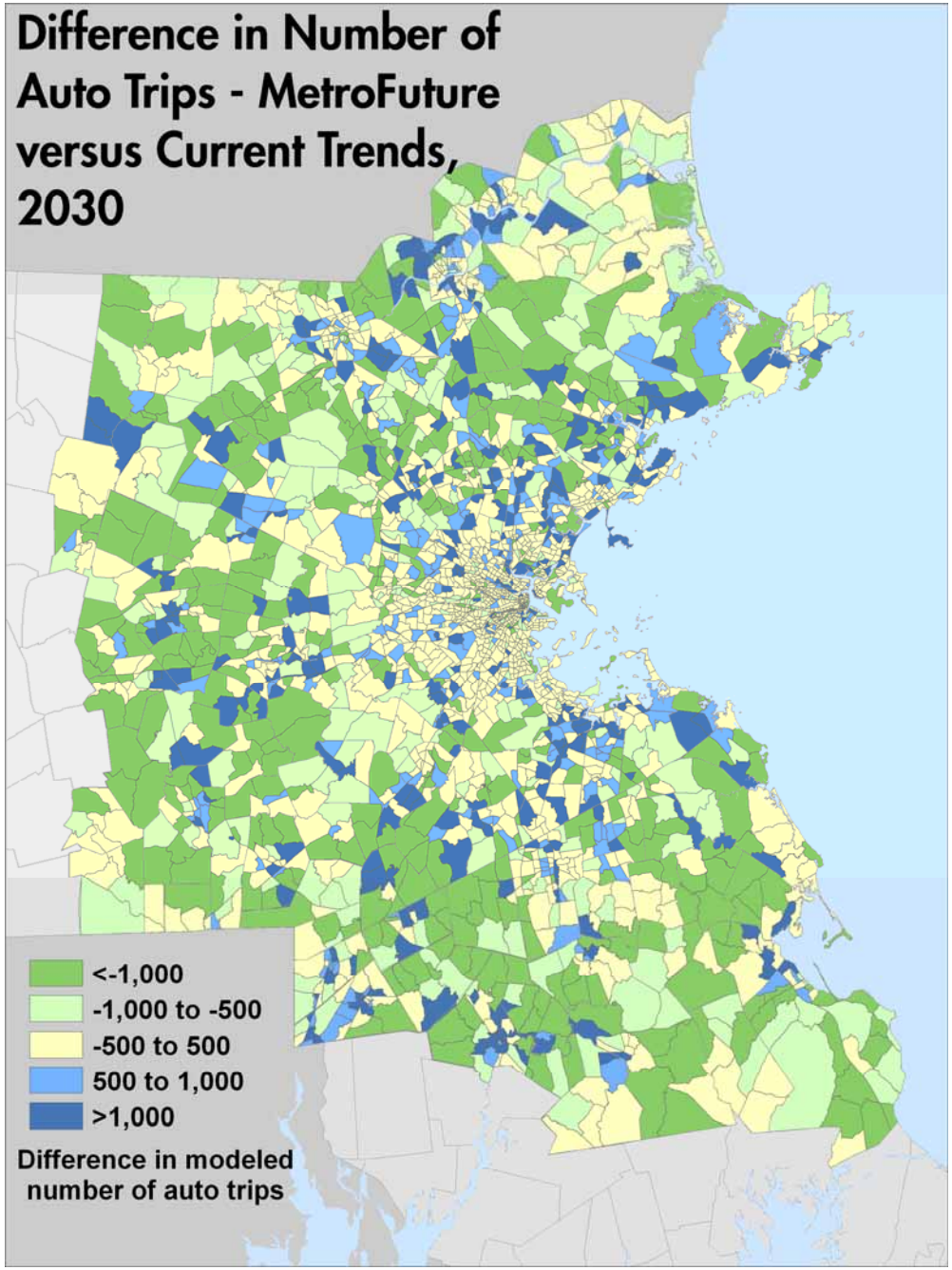
32% of region's residents and jobs at density above 30 units per acre

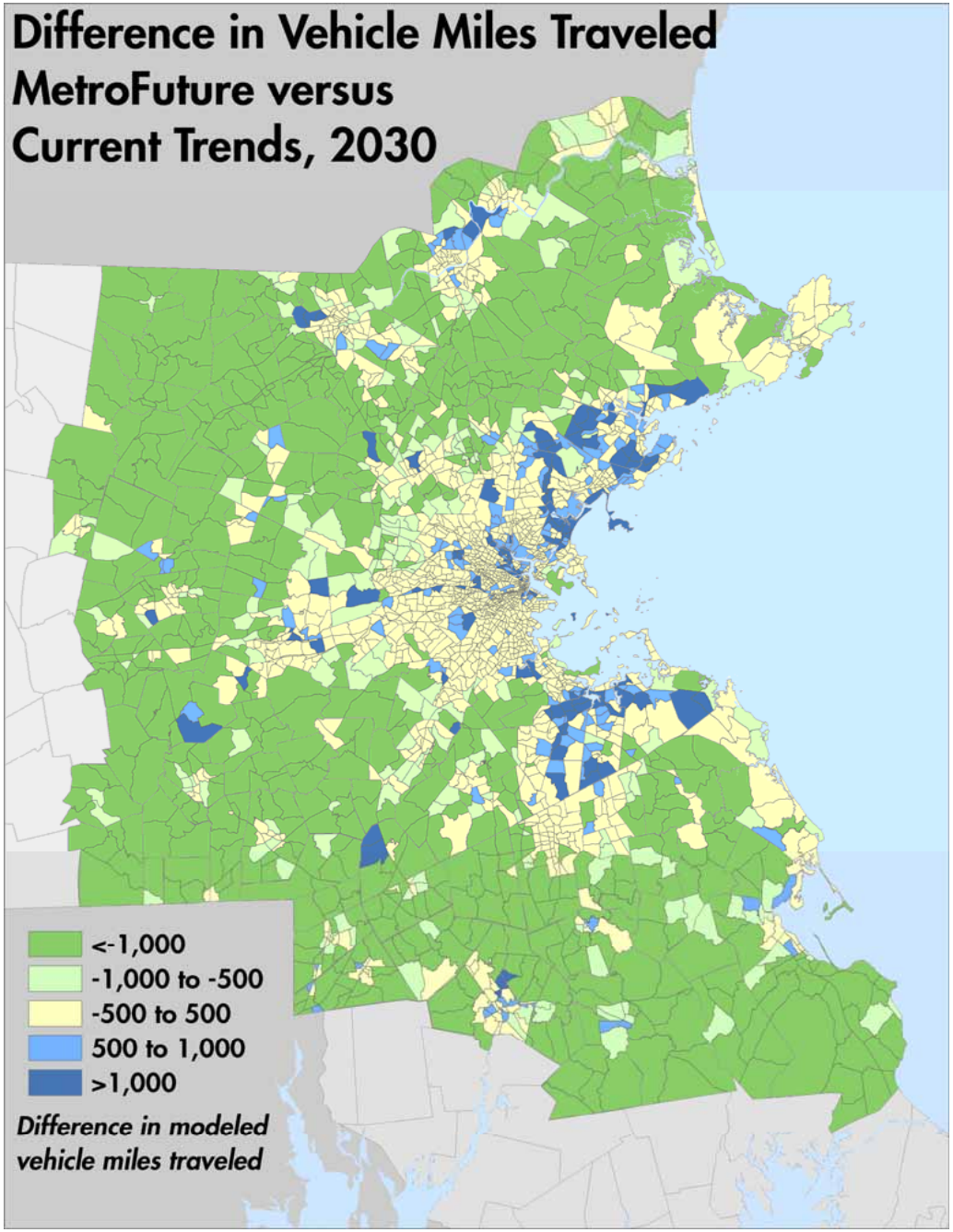


EMME-2 Transportation Model Results

	Year 2000	Current Trends	MetroFuture
Population	4.31 million	4.78 million	4.86 million
Population change	n/a	466,000 (10.8%)	547,000 (12.7%)
Employment	2.35 million	2.59 million	2.64 million
Employment change	n/a	234,000 (9.9%)	293,000 (12.4%)
Total Trips	14.2 million	15.6 million	15.8 million
Auto mode share	77%	74%	73%
Average trip length	8.91 miles	9.0 miles	8.96 miles
Vehicle Miles Traveled (VMT)	107 million	124 million	122 million
VMT per capita	24.8	26.0	25.2

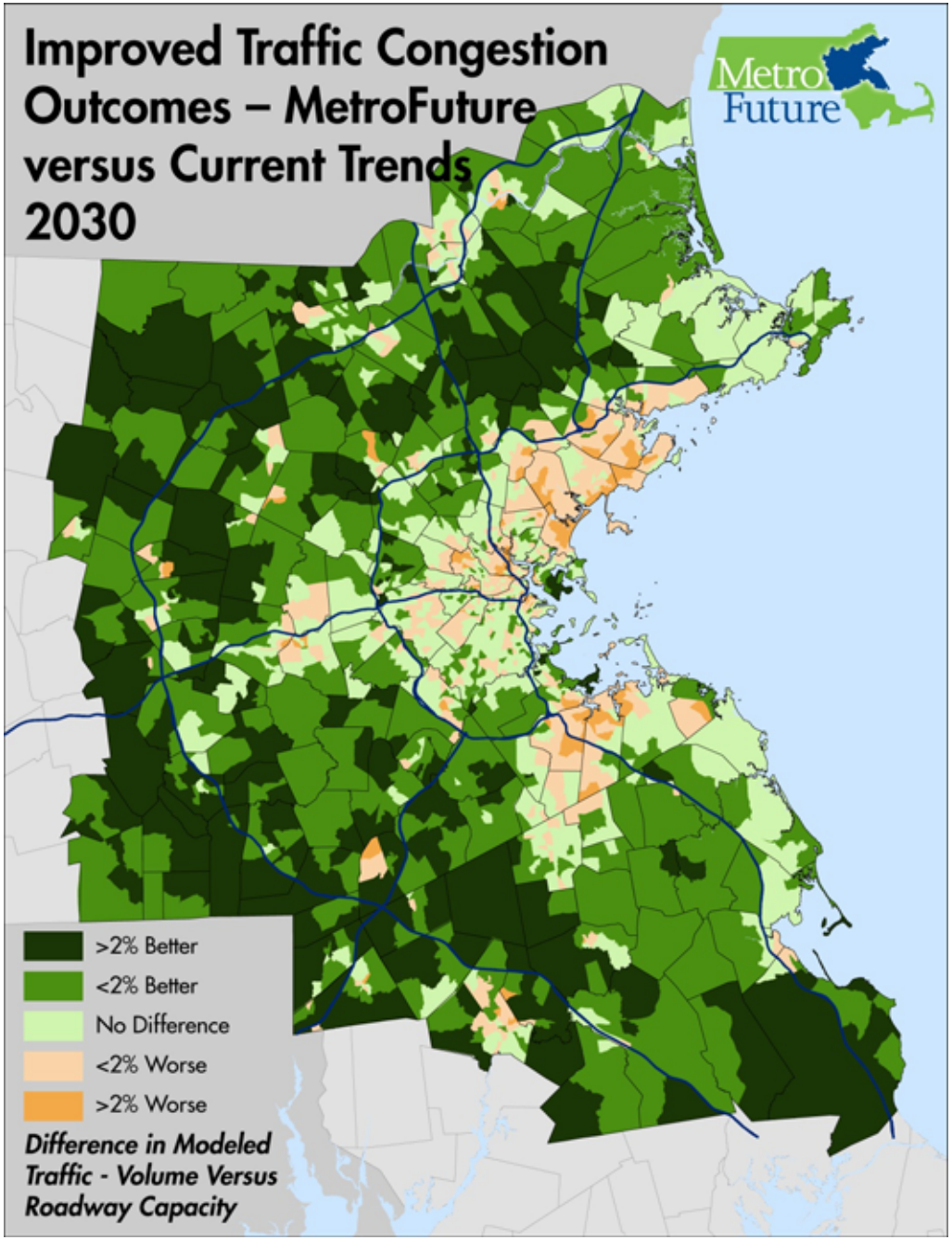
EMME-2 Transportation Model Results





EMME-2 Transportation Model Results

- Regional congestion grows more slowly and affects less area
- Average V/C increases 5.8% versus 6.6% under Current Trends
- 75% of region would have lower congestion
- Suburban centers would see 40% more growth but lower or comparable levels of congestion



Alternative Scenarios and Grid Analysis

Allocated TAZ-level housing units and population to MassGIS-defined grid cells

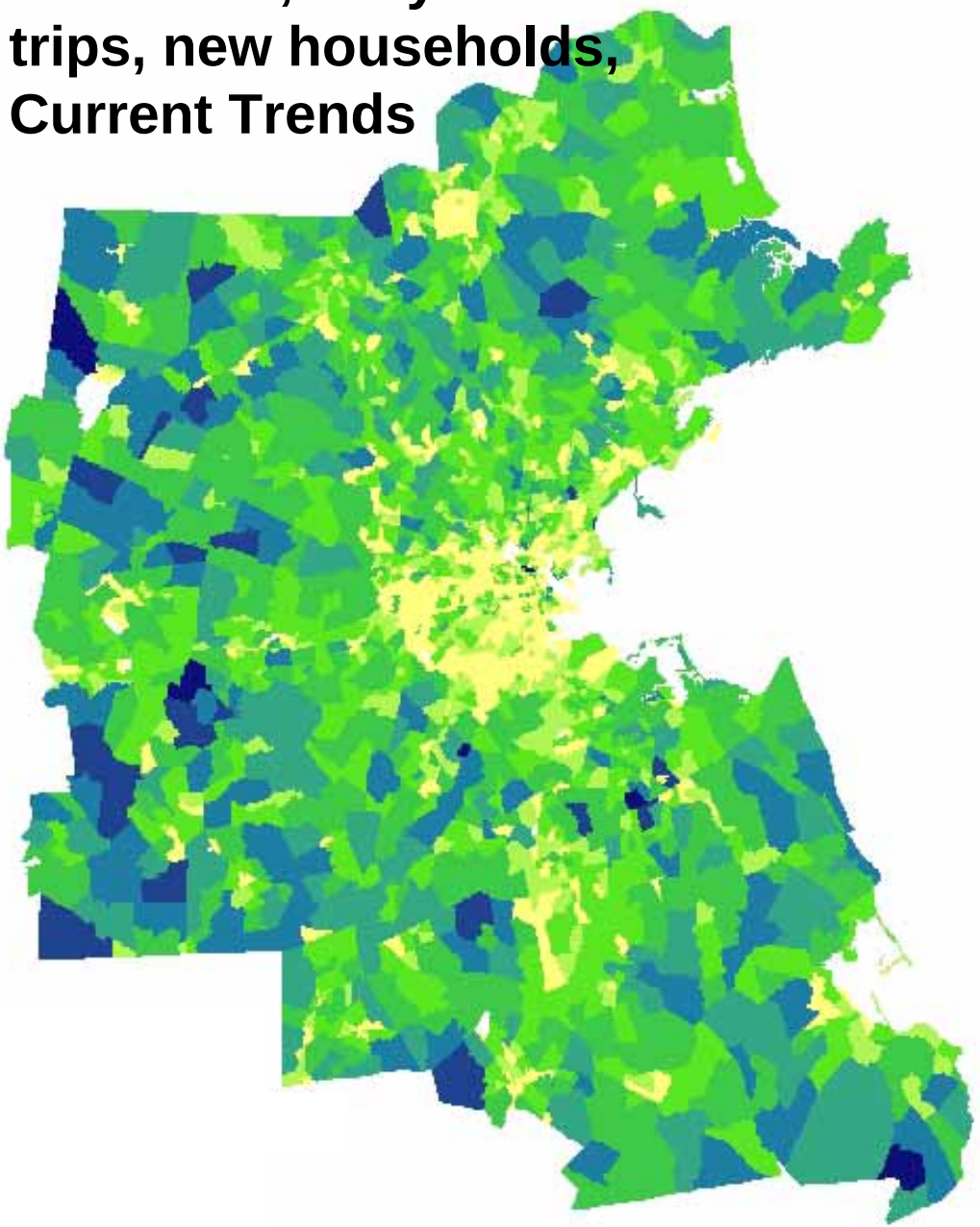
Two different algorithms: “random” and “low-VMT”

Current Trends, “low VMT” allocation: regionwide, **10% less VMT for daily errands** (versus CT random)

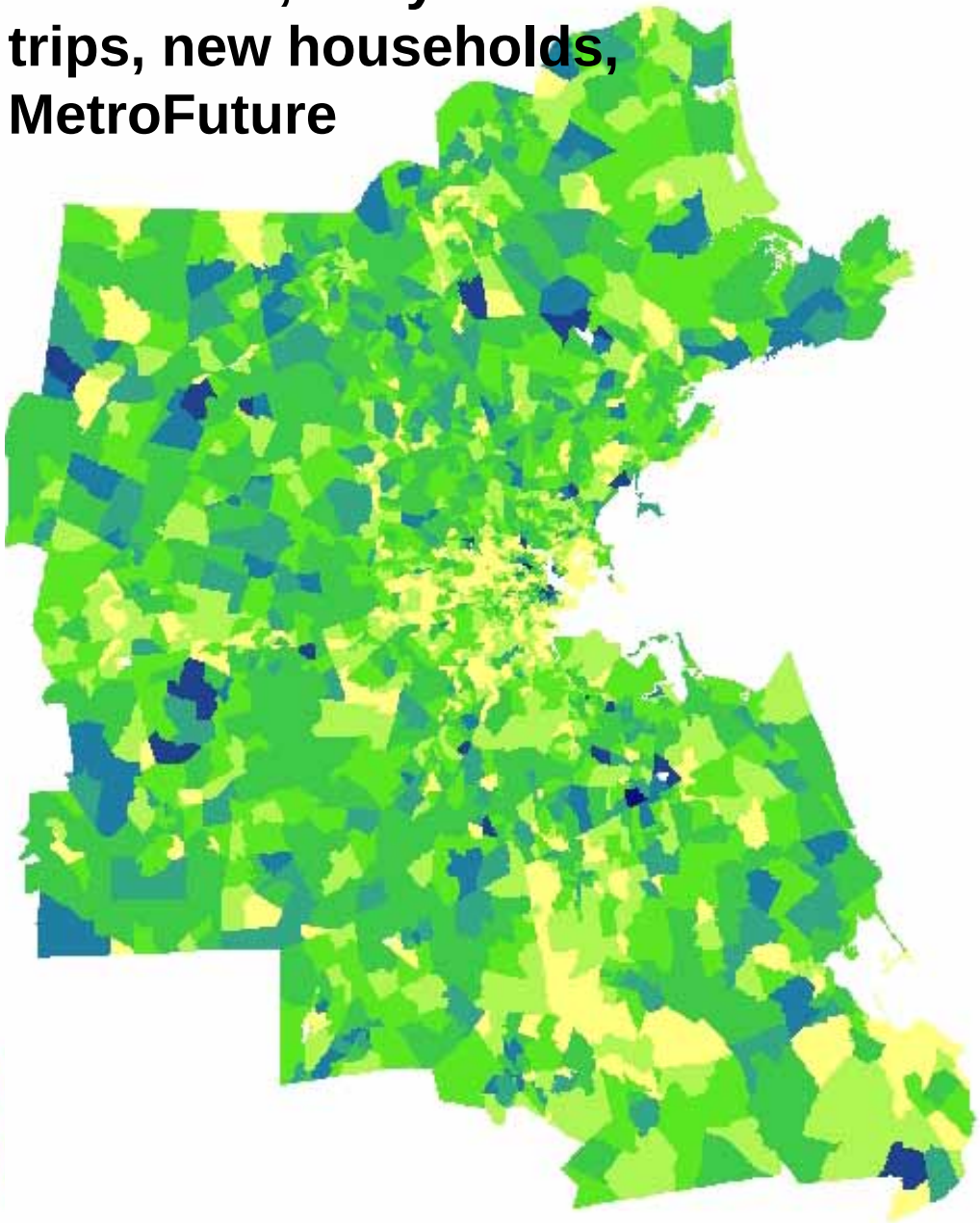
MetroFuture, “low VMT” allocation: regionwide, **35% less VMT for daily errands** (versus CT random)

Grid allocation - daily “errand” VMT

Total VMT, daily errand trips, new households, Current Trends



Total VMT, daily errand trips, new households, MetroFuture



Implications

- Location of new development affects transportation demand and mode choice
- Impacts of local land use patterns and incentives/ disincentives may be underestimated by transportation model
- Intra-municipal changes in land use patterns demonstrate much less impact than regional shifts
- Magnitude of impact limited by relatively low growth trends – 90% of development is already built
- Must leverage all new development to increase transportation choice

MetroFuture Implementation Strategies

- Develop subregional, corridor, and municipal applications for scenario modeling, incorporating grid-based data
- Support private sector decision-making through data and access indices
- Use modeling and updated transportation survey to establish targets for regional and municipal planning and new development
- Develop mechanisms for determining and encouraging consistency of state, regional, and local land use plans (and zoning)

For more information:

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Metro Future

MAKING A GREATER BOSTON REGION